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EXAMINER	
WONG, LINDA	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,626	RAMACHANDRAN ET AL.	
	Examiner	Art Unit	
	Linda Wong	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Regarding claims 1-27, applicant's arguments, see Applicant's Remarks, filed 3/27/2007, with respect to the rejection(s) of claim(s) 1-33 under Peterzell et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yan et al (US Patent No.: 6816718).

2. Regarding claims 28-33, Applicant's arguments filed 3/27/2007 have been fully considered but they are not persuasive.

   a. The applicant contends

> " None of the references disclose or suggest, "a digital-broadcast system that shares the common baseband system with the code-division multiple access system" as cited in claim 28. The Office Action states, on page 7, "Peterzell et al does not disclose processing digital broadcasted signals, but Peterzell et al discloses the system is compatible [sic] to process frequencies within a wireless LAN (802.11). (Col. 3, lines 30-40)."
> Peterzell states, with emphasis added, in col. 3, lines 23-40.
>
> The above figures-of-merit and signal phenomena should be considered when designing wireless communication devices. More generally, the wireless communications landscape has been dominated by Code Division Multiple Access (CDMA), a form of spread spectrum, or broadband, communications in which radio signals are spread over a very wide bandwidth. CDMA technologies. CDMA technologies have been the basis for many modulation standards, such as CDMA (IS-95 and CDMA2000) and WCDMA (IMT2000). Each of these modulation or air-interface standards operates in many radio frequency bands, including Cellular (Japan Cellular and US Cellular), PCS (Personal Communications System in US and Korean bands), and IMT (International Telecommunication Union). Other modulation standards include FM (frequency modulation, IS-19), GSM (Global System for Mobile Communications), US-TDMA (IS-136), GPS (Global Positioning Sytem, (Wireless LAN (802.11), and Bluetooth.
>
> Applicants respectfully submit that col. 3, lines 30-40 in Peterzell appears to merely list modulation standards in the wireless communication landscape. Thus, Peterzell does not disclose or suggest that the system is compatible to process frequencies within a wireless LAN (802.11) as alleged by the Office Action.
>
> Peterzell fails to disclose or suggest a digital-broadcast system that shares the common baseband system with the code-division multiple access system as described in claim 28. Therefore, even if combined, the references do not disclose or suggest all the elements of claim 28. Applicants respectfully request that the rejection to claim 28 be withdrawn."

The examiner respectfully disagrees. Col. 3, lines 23-40 discloses "More generally, the wireless communications landscape has been dominated by Code Division Multiple Access (CDMA), a form of spread spectrum or **broadband, communications in which radio signals are spread over a very wide bandwidth**." This indicates CDMA is used within a spread spectrum or broadband system. Col. 3, lines 23-40 further discloses "**Each of these modulation or air-interface standards operates in many radio frequency bands including** ..." This indicates the modulation types operates in many radio frequency bands. Col. 3, lines 23-40 further discloses "Other modulation standards include RM (frequency modulation, IS-19), GSM (Global System for Mobile communications), US-TDMA (IS-136), GPS(Global Positioning System), Wireless LAN (802.11), and Bluetooth." This indicates these other modulation standards would operate in many radio frequency bands. Fig. 5, labels 310 indicates selection mechanism, wherein the accommodates for "different RF signal paths depending on operating frequency bands" (Col. 8, lines 58-60) This indicates the system can be adjusted so to accommodate for various frequency bands, wherein 802.11a operates at a different frequency band as per Col. 3, lines 23-40. Col. 4, lines 20-26 discloses "For example, the design offers excellent sensitivity and selectivity, an extended signal dynamic range, flexible frequency planning and a lower dynamice range and current consumption for elements in receiver 101 after IF filters 70." This indicates the system is sensitive and provides selectivity to accommodate for different frequency ranges of the

received signal, wherein signals transmitted in OFDM or 802.11a can be accommodated by the system. The rejection of claims 28-33 stands as stated in the office action mailed 1/11/2007.

3. Based on the rebuttal of claim 28, **claims 29-33** are rejected as stated in the office action mailed 1/11/2007.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan et al (US Patent No.: 6816718) in view of Isberg et al (US Patent No.: 6029052).

   a. **Claims 1,11,21**,

      i. Yan et al discloses

         - "means for transmitting signals" (Fig. 1, labels 24 and 28)
         - "converting a first signal based on a first system to a first baseband signal" (Fig. 1, input to one of labels 40A-D as the first signal, one of labels 40A-D as the first system and outputs Q-,I- as the first baseband signals, wherein label 42 converts the first signal into baseband signals depending on the mode (Col. 4, lines 40-62))

- "converting a second signal based on a second system to a second baseband signal" (Fig. 1, input to one of labels 40A-D as the second signal, one of labels 40A-D as the second system and outputs Q+,I+ as the second baseband signals, wherein label 42 converts the second signal into baseband signals depending on the mode (Col. 4, lines 40-62))
- "processing the first baseband signal using baseband components" (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals)
- "processing the second baseband signal using the baseband components" (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals)
- "processing the first baseband signal and the second baseband signal comprises filtering" (Fig. 1, labels 50A-D)
- processing the first baseband and second baseband signal comprises "selectively DC-offset correcting the first and second baseband signals" (Fig. 1, label 56, Col. 5, lines 22-42, lines 51-57, Col. 6, lines 4-12 describes a controllable DC-offset correction of the I-,Q- as the first baseband signal and I+,Q+ as the second baseband signal.)
- "wherein selectively DC-offset correcting comprises selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed" (Col. 5, lines 22-42 discloses "The DC correction circuitry determines the relative DC levels for the differential in-phase and quadrature signals, I+,I-,Q+,Q- and provides corresponding level

adjustment outputs to adjust the DC levels of the individual differential in-phase and quadrature signals, I+,I-,Q+,Q-." Since the down converter processes and outputs signals depending on the mode of the incoming signal (Col. 4, lines 47-52) and DC offset controller determines the relative DC levels of the I+,I-,Q+,Q- signals (Col. 5, lines 22-42), DC offset adjustment applied to the signals would be based on the mode of the signal. By adjusting the DC offset, the DC levels or bandwidths are adjusted.)

ii. Yan et al fails to disclose "selectively filtering the first and second baseband signal, wherein selective filtering comprises selecting different filtering bandwidths".

iii. Isberg et al discloses such a limitation. (Fig. 1-4, Fig. 5, label 42a-b, Col. 3, lines 45-50 discloses "these low pass filters 42a and 42b preferably have programmable bandwidths to enable the receiver to accommodate two bands having different bandwidths." The inputs to the filters are baseband signals as shown in Fig. 2, the output from label 12a and b. (Col. 3, lines 10-13))

iv. It would have been obvious to one skilled in the art at the time of the invention to provide selective filtering as disclosed by Isberg et al in Yan et al's invention so to accommodate for the incoming received signals having different bandwidths.

b. **Claims 2,14,22**, Yan et al discloses the first system and the second system each include at least one of the following systems US cellular, global system for

mobile communications, and personal communication system. (Fig. 4, lines 25-26, Fig. 1, labels US cell, EGSM,DCS,PCS.)

c. **Claims 3,23**, Yan et al discloses the processing further includes at least one of filtering (Fig. 1, labels 38A-D), amplifying (Fig. 1, labels 40A-D), providing sampling and correcting for direct current (DC) offset (Fig. 1, label 56).

d. **Claims 4,24**, Yan et al discloses the processing includes processing in at least one of a digital domain and an analog domain (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.).

e. **Claims 5,16,25**, Yan et al discloses the processing includes configuring at least one of the baseband components for a first frequency response characteristic for the first baseband signal and configuring the at least one of the baseband components for a second frequency response characteristic for the second baseband signal" (Yan et al discloses a multi-mode receiver processing modes at different frequencies, wherein each mode inherently has different frequency response characteristics (Fig. 1, labels 40a-d, Col. 4, lines 25-26, Col. 1, lines 14-32)

f. **Claims 6,7,10,15,17,19**, Yan et al discloses a baseband processor comprising DC offset correction (Fig. 1, label 56), filters (Fig. 1, labels 50a-d, wherein filtering can be low pass, all pass, FIR since such filters are well known in the

art and can be used to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as desired by the inventor), amplification (Fig. 1, labels 52a-b), analog to digital converter (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.)

a. **Claims 8,20,27**, Yan et al discloses a plurality of different modes or systems (Fig. 1, labels 40a-d) The system as shown in Fig. 1 would receive plurality of signals, since the receiver continuously receives signals produced from any of the types of systems.

g. **Claim 9,18,26,** Yan et al discloses the baseband processor, label 30, "implemented in one of more digital signal processors", which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally. Since I+,I-,Q+ and Q- signals are adjusted based on the mode of the received signal, the signals would be sampled at a rate determined by Nyquist matching the mode of the signal.

h. **Claim 12**, Yan et al discloses "a downconverter that is configured to convert a first signal to the first baseband signal and a second signal to the second baseband signal". (Fig. 1, label 42 and Col. 4, lines 40-52)

i. **Claim 13**, Yan et al discloses "a first downconverter and a second downconverter, the first downconverter configured to convert a first signal to the first baseband signal, the second downconverter configured to convert a second signal to the second baseband signal." (Col. 4, lines 40-62 discloses "The down-conversion circuitry 42 typically uses a one or more mixing frequencies generated by the frequency synthesizer 34 to effect quadrature down conversion." This indicates the down conversion circuitry would comprise at least one down converter for converting the I and Q signals as shown outputted in Fig. 1.)

1st Prior art Rejection for claims 28-33

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell et al (US Patent No.: 6694129) in view of Digital Video Broadcasting (http://www.dvb.org) and further in view of IEEE 802.11a Standards.

a. **Claim 28**, Peterzell et al discloses a multi-mode receiver processing CDMA signals as well as GPS, GSM, etc. using a common baseband processor. (Fig. 4, label 230 and Col. 7, lines 54-60) Peterzell et al does not disclose

processing digital broadcasted signals, but Peterzell et al discloses the system is compatable to process frequencies within a wireless LAN (802.11). (Col. 3, lines 30-40) Digital broadcasting system was produced in Europe based on OFDM, which is found in 802.11a. (Digital Video Broadcasting discloses in the history OFDM is the element of use and IEEE 802.11a Standards discloses OFDM as its type of modulation used.) Since Peterzell et al's invention can process frequencies within an 802.11 system, digital broadcasting system is based on OFDM and OFDM is found within an 802.11a system, Peterzell et al's invention can also process DBS signals. Furthermore, Peterzell et al discloses a system that can process digital and audio streams. (Col. 7, lines 54-60) Since a digital broadcast system would require a system to process digital signals, Peterzell et al's system can perform such functionalities.

b. **Claims 29 and 31,** Peterzell et al discloses a baseband processor comprising DC cancellation, matched and jammer filtering, which can be low-pass, all-pass, high-pass filters, finite-impulse response filters or smoothing filters, automatic gain controllers (AGC), and decoding into digital data or audio streams. (Col. 7, lines 54-60)

c. **Claim 30**, Regarding the limitation "low-pass filter and the DC-correction element are configured to include switchable bandwidths", Peterzell et al discloses in Fig. 3, labels mode select and 70 selective filtering depending on the mode, wherein each mode would inherently require a different filtering bandwidth. Fig. 3, label I Channel DC offset correction and Q Channel DC

offset correction is inputted in to labels 105 and 100, which indicates the bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction. Furthermore, Col. 9, lines 30-35 discloses an adjustable LO 350 depending on the operation of the frequency and Col. 10, lines 41-59 discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset.

d. **Claim 32**,

i. Peterzell et al discloses

- "at least one of the analog-to-digital, digital-to-analog converter, and the decimation filter" (Col. 7, lines 54-60)
- the components as stated above "is configured to have a first sampling rate for the code-division multiple access system and a second sampling rate for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is being received in. Sampling the received signals at different sampling rates would be inherently since different modes would require different sampling rates due to the difference in frequency.)

e. **Claim 33**,

i. Peterzell et al discloses

- "at least one finite-impulse response filter, the DC correction element and the decimiation filter" (Col. 7, lines 54-60 and Fig. 3, label I and Q Channel DC offset correction)
- the components as stated above "is configured to operate at a first frequency response for the code-division multiple access system and a second frequency response for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is being received in. Different frequency response would be inherently found for the different modes since each mode differs in frequency.)

2nd Prior art Rejection for claims 28-33

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan et al (US Patent No.: 6816718) in view of Digital Video Broadcasting (http://www.dvb.org) and further in view of IEEE 802.11a Standards.

   a. **Claim 28**,

      i. Yan et al discloses

- "a code-division multiple access system having a common baseband system" (Col. 1, lines 14-33 discloses CDMA and Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals shows a common baseband system.)
- a different system "that shares the common baseband system with the code division multiple access system." (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals shows a common baseband system, labels 40a-d shows the different types of modes.)

ii. Yan et al fails to disclose the term "a digital broadcasting system".

iii. Yan et al discloses "improved DC offset correction in a radio frequency receiver, which is capable of receiving signals using any number of communication technologies" (Col. 2, lines 37-40) and "Given the lack of standardization and the varying infrastructure for the above systems, mobile terminals, such as mobile telephone, personal digital assistants, wireless modems, and the like, often need to communicate in different bands and operate in different modes, depending on the type of transmission technology used." (Col. 1, lines 34-40) The disclosed section indicates Yan et al's invention can accommodate for "any number of communication technologies" including "wireless modems", wherein 802.11a is a type of "wireless modem".

iv. Digital broadcasting system was produced in Europe based on OFDM, which is found in 802.11a. (Digital Video Broadcasting discloses in the history

OFDM is the element of use and IEEE 802.11a Standards discloses OFDM as its type of modulation used.)

b. **Claims 29,31,32,33,** Yan et al discloses a baseband processor comprising DC offset correction (Fig. 1, label 56), filters (Fig. 1, labels 50a-d, wherein filtering can be low pass, all pass, FIR since such filters are well known in the art and can be used to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as desired by the inventor), amplification (Fig. 1, labels 52a-b), analog to digital converter (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Linda Wong
6/22/2007

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